

## Quieting the Din at the Gin

Exchanging solid-wound brush cylinders for the standard doffing brush cylinders used to comb trash out of newly harvested cotton has reduced one source of gin noise. The solid-wound brush can be used in several types of gin machinery, including the two leading sources of noise: lint cleaners and gin stands. Fiber is removed from cotton at the gin stands, then foreign matter and other contaminants are removed by the lint cleaners.

During a field trial, noise levels while using both the standard and solid-wound brushes were measured and compared. They fell from 94 decibels—measured on the logarithmic A-scale used by industry to approximate the human ear—to 78 decibels. Such noise abatement would greatly improve worker comfort and safety in cotton gins. And more than 80,000 test bales were processed using the solid-wound brush without any operational problems. Now other gin owners are using the new technology, and a brush manufacturer interested in cooperation to develop a less-expensive refill for the solid-wound brush is being sought. *W. Stanley Anthony, USDA-ARS Cotton Ginning Research Unit, Stoneville, Mississippi; phone (662) 686-3094, e-mail santhony@ars.usda.gov.*

## How Hessian Flies Harass Wheat

Something poisonous in the saliva of Hessian fly larvae triggers a disastrous response in wheat plants. It causes stunting—and even death—costing growers up to \$100 million in losses annually. So researchers want to know what this substance is—and which fly genes are responsible for its manufacture. They've identified several genes from the fly's salivary glands that may trigger release of plant-altering molecules that appear to help create a favorable environment for developing larvae.

Plant breeders are constantly engaged in a vicious cycle, developing wheats that resist the Hessian fly . . . for a time. But

about every 6 to 10 years, the pest reinvents itself, changing into a new biotype against which the new wheat plant has no defense. By focusing on the point of interaction between fly saliva and plant cells, researchers hope to eventually endow wheat plants with unique biological tools that could provide long-lasting resistance to the fly. *Ming Shun Chen, USDA-ARS Plant Science and Entomology Research Unit, Manhattan, Kansas; phone (785) 532-4719, e-mail mchen@oznet.ksu.edu.*

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Hessian fly.

## New Pinto Bean Resists Fungi

The pinto is the dry bean most often purchased by consumers and accounts for 40 percent of U.S. dry bean sales. Like other dry beans, pintos are an excellent, inexpensive source of protein and fiber. And now, a new, high-yielding pinto germplasm line is promising to make the future even rosier for growers. Known as TARS-PT03-1, this line offers a new source of resistance to soilborne fungi that cause root rot, including *Fusarium solani*, *Rhizoctonia solani*, and *Pythium* species. It's also moderately resistant to common bacterial blight.

Although TARS-PT03-1 is small-seeded, it should help plant breeders develop cultivars with disease resistance and greater yield potential. It has shown good adaptability and performed well in trials in both tropical and temperate regions. A limited amount of seed can be obtained through e-mail request to mayrg@ars-grin.gov. *Ricardo Goenaga,*

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## Vaccines To End END

Exotic Newcastle disease (END) is a highly contagious, fatal viral disease caused by virulent Newcastle disease virus (NDV). It afflicts most bird species and kills nearly all infected, unvaccinated birds within days. END can cause terrible losses to poultry producers and backyard bird enthusiasts alike. A recent outbreak in California led to the euthanizing of some 3.5 million chickens, turkeys, geese, pigeons, peacocks, and other birds, to keep the virus from spreading to other states. When it was over, nearly \$180 million had been spent on federal-state efforts to contain and eradicate the END outbreak.

A new, experimental vaccine could be a significant improvement over those now in use. Current NDV vaccines rely on either killed virus or weakened live virus to stimulate an immune response that imparts protection. But these vaccines can cause adverse reactions in some birds, with resulting production losses.

To avert the problem, scientists have taken the NDV apart, removed its replicating genetic material, and reassembled it. The resulting virosome vaccine can attach to and fuse with host cells, but lacking genetic material, it can't replicate or harm the bird. This prevents the virus from passing from bird to bird, and it also makes possible the differentiation between vaccinated and virus-infected birds. Though this experimental virosome vaccine has shown promising results, further testing will be required before it is approved for production and use. *Darrell R. Kapczynski, USDA-ARS Southeast Poultry Research Laboratory, Athens, Georgia; phone (706) 546-3471, e-mail dkapczynski@seprl.usda.gov.*

